Notice of Allowability	Application No.	Applicant(s)	
	09/683,263	BRADFORD ET AL.	
	Examiner	Art Unit	
	Neveen Abel-Jalil	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *March 13, 2006*.

2. ☒ The allowed claim(s) is/are *1-6,14-17 and 22-24*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

LHHEY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

Remarks

1. The Amendment filed on 13-March-2006 has been received and entered. Claims 1-24 are pending.

2. Amendments to the claims have overcome the 35 USC 101, and 35 USC 112, second paragraph rejections.

Response to Amendment

3. The Declaration filed on March 13, 2006 under 37 CFR 1.131 is sufficient to overcome the Cristianini et al. article reference.

EXAMINER'S AMENDMENT

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Thomas C. Fiala (Attorney of Record) on March 27, 2006.

Amendments to the Claims:

5. This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

6. The application has been amended as follows:

Claim 1: (Previously Presented) A computer-based method for representing latent semantic content of a plurality of documents, each document containing a plurality of terms, the method comprising:

deriving at least one n-tuple term from the plurality of terms;

forming a two-dimensional matrix, each matrix column c corresponding to a document,

each matrix row r corresponding to a term occurring in at least one document corresponding to a matrix column,

each matrix element (r, c) related to a number of occurrences of the term;

corresponding to the row r in the document corresponding to column c, at least one matrix element related to the number of occurrences of the at least one n-tuple term occurring in the at least one document, and

performing singular value decomposition and dimensionality reduction on the matrix to form a latent semantic indexed vector space and storing the latent semantic indexed vector space in an electric form accessible to a user.

Claim 2: (Currently Amended) The ~~invention~~ computer-based method as recited in claim 1 further comprising:

identifying an occurrence threshold;

wherein n-tuples that appear less times in the document collection than the occurrence threshold are not included as elements of the matrix

Claim 3: (Currently Amended) The ~~invention~~ computer-based method as recited in claim 2 wherein the occurrence threshold is two.

Claim 4: (Currently Amended) The ~~invention~~ computer-based method as recited in claim 1 wherein deriving at least one n-tuple term further comprises:

creating the at least one n-tuple term from n consecutive verbatim terms.

Claim 5: (Previously Presented) A computer-based method for determining conceptual similarity between a subject document and at least one of a plurality of reference documents, each reference document containing a plurality of terms, the method comprising:

deriving at least one n-tuple term from the plurality of terms;

forming a plurality of two-dimensional matrices wherein, for each matrix:

each matrix column c corresponds to a document, wherein one column corresponds to the subject document and the remaining columns correspond to the reference documents;

each matrix row r corresponds to a term occurring in at least one of the subject document or the reference documents,

each matrix element (r, c) represents a number of occurrences of the term corresponding to r in the document corresponding to c;

performing singular value decomposition and dimensionality reduction on the plurality of formed matrices, to form a plurality of latent semantic indexed vector spaces,

the plurality of latent semantic indexed vector spaces including at least one space formed from a matrix including at least one element corresponding to the number of occurrences of at least one n-tuple term in at least one document,

determining at least one composite similarity measure between the subject document and the at least one reference document as a function of a weighted similarity measure of the subject document to the at least one reference document in each of the plurality of indexed vector spaces and storing the at least one composite similarity measure in an electric form accessible to a user.

Claim 6: (Previously Presented) The method as recited in claim 5 wherein the at least one composite similarity measure comprises weighing similarity measures from vector spaces comprising greater numbers of n-tuples greater than similarity measures from vector spaces comprising lesser number of n-tuples.

Claims 7-13 (canceled)

Claim 14: (Previously Presented) A computer-based method for characterizing results of a query comprising:

automatically identifying n-tuples included in a collection of documents based on an analysis of the collection of documents, wherein each document in the collection of documents contain a plurality of terms;

forming a latent semantic indexed vector space based on (i) the documents in the collection of documents, (ii) the plurality of terms, and (iii) the automatically identified n-tuples;

querying the latest semantic indexed vector space with a query having at least one term;

ranking results of the querying step as a function of at least a frequency of occurrence of the at least one term, thereby generating a characterization of the results; and

storing the characterization in an electronic form accessible to a user.

Claim 15: (Original) The method as recited in claim 14 wherein at least one term used in ranking is a query term.

Claim 16: (Original) The method as recited in claim 15 wherein the at least one query term used in ranking is a generalized entity.

Claim 17: (Original) The method as recited in claim 14 wherein the at least one term used in ranking is a generalized entity.

Claims 18-21 (canceled)

Claim 22: (Previously Presented) A computer-based method for representing latent semantic content of a plurality of documents, each document containing a plurality of verbatim terms, the method comprising:

deriving at least one expansion phrase from the verbatim terms, each expansion phrase comprising terms;

replacing at least one occurrence of a verbatim term having an expansion phrase with the expansion phrase corresponding to that verbatim term;

forming a two-dimensional matrix,

each matrix column c corresponding to a document;

each matrix row r corresponding to a term);

each matrix element (r, c) representing a number of occurrences of the term corresponding to r in the document corresponding to c;

at least one matrix element corresponding to the number of occurrences of one at least one term occurring in the at least one expansion phrase, and

performing singular value decomposition and dimensionality reduction on the matrix to form a latent semantic indexed vector space and storing the latent semantic indexed vector space in an electronic form accessible to a user.

Claim 23: (Previously Presented) A computer-based method for representing the latent semantic content of a plurality of documents, each document containing a plurality of terms, the method comprising:

identifying at least one idiom among the documents,

each idiom containing at least one idiom term;

forming a two-dimensional matrix,

each matrix column corresponding to a document;

each matrix row corresponding to a term occurring in at least one document represented by a row;

each matrix element representing a number of occurrences of the term corresponding to the element's row in the document corresponding to element's column;

at least one occurrence of at least one idiom term being excluded from the number of occurrences corresponding to that term in the matrix,

performing singular value decomposition and dimensionality reduction on the matrix to form a reduced matrix and storing the reduced matrix in an electronic form accessible to a user.

Claim 24: (Previously Presented) A computer-based method for representing the latent semantic content of a plurality of documents, each document containing a plurality of terms, the method comprising:

identifying at least one idiom among the documents,

each idiom containing at least one idiom term;

replacing at least one identified idiom with a corresponding idiom elaboration, each elaboration comprising at least one elaboration term,

forming a two-dimensional matrix,

each matrix column corresponding to a document;

each matrix row corresponding to a term;

each matrix element representing a number of occurrences of the term corresponding to the element's row in the document corresponding to element's column,

at least one matrix element corresponding to the number of occurrences of an elaboration term in a document corresponding to a matrix column;

performing singular value decomposition and dimensionality reduction on the matrix to form a reduced matrix and storing the reduced matrix in an electronic form accessible to a user.

Allowance

7. Claims 1-6, 14-17, and 22-24 are allowed over the prior art made of record.

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neveen Abel-Jalil whose telephone number is 571-272-4074. The examiner can normally be reached on 8:30AM-5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A. Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Neveen Abel-Jalil
March 27, 2006